UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/570,485 | 03/03/2006 | Eishin Kato | 80110(302725) | 9937 |

21874 7590 09/27/2010

EDWARDS ANGELL PALMER & DODGE LLP
P.O. BOX 55874
BOSTON, MA 02205

| EXAMINER | |
|---|---|
| MI, QIUWEN | |
| ART UNIT | PAPER NUMBER |
| 1655 | |
| MAIL DATE | DELIVERY MODE |
| 09/27/2010 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/570,485 | KATO ET AL. | |
| | Examiner | Art Unit | |
| | QIUWEN MI | 1655 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *21 September 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,5-9,16 and 19* is/are pending in the application.

4a) Of the above claim(s) *6* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5,7-9,16,17 and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

Applicant's amendment in the reply filed on 9/21/2010 is acknowledged. Claims 2-4, 10-15, 18, and 20 are cancelled. Claims 1, 5-9, 16, 16, and 19 are pending. Claim 6 is withdrawn. **Claims 1, 5, 7-9, 16, 17, and 19 are examined on the merits.**

Any rejection that is not reiterated is hereby withdrawn.

### Claim Rejections –35 USC § 112, 1st New Matter

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 5, 7-9, 16, 17, and 19 are newly rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

This is a new rejection necessitated by the Applicant's amendment filed on 9/21/2010.

Claim 1 (lines 3-4) recites "(hydrolyzing by glucosidase in the seeds)". However, the specification fails to provide any support regarding the description of "hydrolyzing by glucosidase in the seeds". Therefore, it is not reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, Applicant had possession of the "hydrolyzing by glucosidase in the seeds" in the invention. Thus, the subject matter of "hydrolyzing by glucosidase in the seeds" is a new matter that needs to be cancelled.

All other cited claims depend directly or indirectly from rejected claims and are, therefore, also, rejected under U.S.C. 112, first paragraph for the reasons set forth above.

**Claim Rejections –35 USC § 112, 2nd**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 5, 7-9, 16, 17, and 19 remain rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

This rejection is maintained for reasons of record set forth in the Office Action mailed out on 4/21/2010, repeated below, slightly altered to take into consideration Applicant's amendment filed on 9/21/2010. Applicants' arguments filed have been fully considered but they are not deemed to be persuasive.

Claim 1 (lines 3-4) recites parenthetical expression "(hydrolyzing by glucosidase in the seeds)". The metes and bounds of Claim 1 are rendered vague and indefinite by the parenthetical recitation of "(hydrolyzing by glucosidase in the seeds) because it is unclear as to whether the limitation is part of the instantly claimed subject matter.

Claim 7 recites "A mixed vegetable extract comprising Gnetum according to claim 5 being added to vegetable extract". The recitation is very confusing, as Gnetum itself is a vegetable, and it is not clear whether the 50% ethanol extract of Gnetum is the vegetable extract or the 50% ethanol extract of Gnetum has to be added and mixed with another vegetable extract.

Therefore, the metes and bounds of claims are rendered vague and indefinite. The lack of clarity renders the claims very confusing and ambiguous since the resulting claims do not clearly set forth the metes and bounds of the patent protection desired.

All other cited claims depend directly or indirectly from rejected claims and are, therefore, also, rejected under U.S.C. 112, second paragraph for the reasons set forth above.

## Claim Rejections –35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 5, 7-9, 16, 17, and 19 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Boralle et al (Oligostibenoids from Gnetum venosum, Phytochemistry, 34 (5): 1403-1407, 1993), in view of Berry (Cyclopropene fatty acids in Gnetum gnemon (L.) seeds and leaves, Journal of the Science of Food and Agriculture, (1980) Vol. 31, No. 7, pp. 657-662), and further in view of Iliya et al (Iliya et al, Stilbene derivatives from two species of Gnetaceae, Chem. Pharm. Bull. 50 (6) 796-801 (2002)), and Qi (Qi, Optimum for extraction processing of stilbene glucoside from Polygonum multiflorum, Zhongcaoyao (2002), 33(7), 609-611).

This rejection is maintained for reasons of record set forth in the Office Action mailed out on 4/21/2010, repeated below, slightly altered to take into consideration Applicant's

amendment filed on 9/21/2010. Applicants' arguments filed have been fully considered but they are not deemed to be persuasive.

Boralle et al teach extracting the seeds of Gnetum venosum by exhaustive percolation with EtOH (thus a solid-liquid mixture, an organic solvent, a polar organic solvent, thus soaking and aging, hydrolyzing by glucosidase in the seeds). The solution was evaporated (thus solid content is removed) and the residue partitioned between $CHCl_3$, and MeOH. The solvents were evaporated. The residue of the $CHCl_3$ solution was fractionated first by CC and finally by TLC. All compounds were purified by HPLC (see title; page 1407, 1st column, 5th paragraph). Boralle et al also teach Gnetum venosum contains, besides the stilbenes resveratrol and reponitigentin, oxidative stilbene oligomers such as the dimer gnetic C and the tremers gnetic E, gentic J and gnetic K (see Abstract). It is noted that since Boralle et al do not specify the percolation temperature, it is assumed that the percolation is performed under room temperature, which is below 70 degree C. Even if the extraction is performed under EtOH reflux, since the boiling point of ethanol is 78.4 degree C, it meets the claim limitation of "below about 70 degree C".

Boralle et al do not explicitly teach using 15-80% EtOH or 50% EtOH to extract Gnetum gnemon seeds, nor do Boralle et al teach mixing Gnetum extract to vegetable extract, or an aged Gnetum extract of more than 12 h.

Iliya et al teach the family of Gnetaceae is known to contain stilbenoids. The leaves and the fruits are used as food in many parts of tropics. Five new stilbenoids isolated from two species of Gnetaceae. Gnemonoils A and B were obtained from the root of Gnetum gnemon. Gnemonol C, gnemonoside E and gnetal were isolated from both species (page 796, 1$^{st}$ column, 1$^{st}$ paragraph).

Berry teaches seed kernels of Gnetum gnemon, eaten after boiling or roasting the nuts (see Abstract). Berry teaches that nuts are starchy, astringent and rather bitter in taste that persists even after cooking. The kernels are eaten after removing the shell from the roasted or boiled nuts. They are mashed, moulded into cakes, biscuits or pounded flat into 'keropok' (crisps) which are dried in the sun (thus an aged Gnetum extract for more than 12 hours) and deep-fried in oil prior to consumption (page 44, 1st paragraph). Berry also teaches the young leaves of the plant are consumed as vegetable (page 44, 2nd paragraph).

Qi teaches stilbene glucoside was extracted from Polygonum multiflorum with 6.0-fold 50% ethanol by refluxing for 30 min. The effect of extraction on stilbene glucoside level was studied by HPLC. The content of stilbene glucoside in the extract was affected by extractant concentration and extraction time, preferably extractant concentration (see Abstract, the rejection is based on the Abstract, full translation was attached in the last office action).

It would have been *prima facie* obvious for one of ordinary skill in the art at the time the invention was made to use ethanol (thus polar solvent) to extract stilbene from the seeds or seeds containing material from Gnetum gnemon since Boralle et al teach that it is from the seeds of the same genus Gnetum, stilbene was isolated. Further more, Iliya et al teach the family of Gnetaceae is known to contain stilbenoids, and stilbene was isolated from the root of claimed species Gnetum gnemon. Therefore, an artisan of ordinary skill at the time of the invention would have had a reasonably expected that the seeds or seed containing material of Gnetum gnemon has the sought properties, which are stilbenes, namely gnetin C, gnemonocide A and Gnemonocide D, and it is deemed that the claimed material stilbenes would necessarily have the claim designated antimicrobial and/or antioxidative function.

It would have been *prima facie* obvious for one of ordinary skill in the art at the time the invention was made to boil the Gnetum gnemon kernels (the same as seeds) and leaves (thus mixing with vegetable extract) together (thus a polar extract water) and then to consume since Berry teaches both the kernel and leaves can be eaten.

It would have been *prima facie* obvious for one of ordinary skill in the art at the time the invention was made to use 50% ethanol to extract stilbenoid since Qi teaches using 50% ethanol to extract stilbene glycoside (thus a stilbenoid) and the content of stilbene glucoside in the extract was affected by extractant concentration.

Since all of the references teach using plant materials from genus Gnetum, one of ordinary skill in the art would have been motivated to make the modifications and combine the references together.

Since the references teach extracting the claimed material Gnetum seeds with the claimed solvent ethanol, it is deemed that the extracts would intrinsically have the claimed absorption spectrum and Rf value.

The intended use of the composition was analyzed for patentable weight. It is deemed that the preamble 'breathes life' into the claims in that the prior art product must not be precluded for use as cosmetic or seasoning products. It is deemed that the composition disclosed by the cited reference is not precluded for carrying out the intended function of the claims.

From the teachings of the references, it is apparent that one of the ordinary skills in the art would have had a reasonable expectation of success in producing the claimed invention.

Thus, the invention as a whole is *prima facie* obvious over the references, especially in the absence of evidence to the contrary.

Applicant argues that "As previously argued and will also be shown below, the invention now claimed which recites glucosidase, a soak temperature below about 70°C and the concentration of the claimed components, is not made obvious by the combination of the cited references" (page 4, 3rd paragraph from the bottom). Applicant also argues that "The combination of Boralle, Iliya, Berry and Qi nowhere teaches the *aging step* which means hydrolysis of glucoside (Gnemonoside A to Gnetin C via Gnemonoside D) by glucosidase in *Gnetum gnemon* seed (see p.8 of the Amendment dated March 30, 2010). Berry does not show an improvement of taste of the vegetable extract by the Gnetum extract" (page 4, 2nd paragraph from the bottom). Applicant argues that "As mentioned above, an artisan of ordinary skill cannot expect from the combination of the prior art that *a glucosidase exists in the endosperms and hydrolyzes Gnenonoside A to Gnetin C through Gnenonoside D. Thus the applicants found out the existence of glucosidase (aging)* and established the absorption spectrum and Rf value in claim in order to confirm the existence of Gnetin C" (page 6, 1st paragraph).

This is not found persuasive. Boralle et al teach extracting the seeds of Gnetum venosum by exhaustive percolation with EtOH, thus meets the claim limitation of soaking and aging, hydrolyzing by glucosidase in the seeds. It is also noted that since Boralle et al do not specify the percolation temperature, it is assumed that the percolation is performed under room temperature, which is below 70 degree C. Even if the extraction is performed under EtOH reflux, since the boiling point of ethanol is 78.4 degree C, it meets the claim limitation of "below about 70 degree C". It is noted that claims recite a product, not a method.

Applicant argues that "Qi teaches only at best, extraction with 50% ethanol by refluxing, which leads to an *inactivation of the glucosidase.* Qi also does not notice the presence of the glucosidase in P. *multiflorem*" (page 4, last paragraph). Applicant also argues that "*The sentence from Qi mentioned in the Office Action on p.6, lines 12-13 (The level of stilbene glucoside in the extract was 2 - 3 times lower than that before extraction.) does not in fact exist in the full English translation, which corresponds to, "The level of stilbene glucoside in prepared P. multiflorem* product is 2 - 3 times lower than that of fresh *P. multiflorem* product in Table 4 (P.9)." *The prepared product is not the extract.* Qi describes that the stilbene glucoside content in *P. multiflorum* from different sources varied as much as 2 - 3 times (p.9, line 6). Furthermore, Qi describes the content of stilbene glucoside in the *P. multiflorem* powder obtained from different sources and used for the extraction, but does not consider the level of stilbene glucoside in the extract which is not weighed in the preparation of the sample test solution (see p.7 of Qi). *The level is not equal to the content,* because the content of stilbene glucoside in extract cannot be calculated" (page 5, 1st paragraph). Applicant further argues that "Qi's Table2 shows that the content of glucoside in *P. multiflorem* powder (yield from 2 g of the powder; Experimental Proof, p.6) decreases with increasing concentration of EtOH. In contrast the applicant's data in this invention (Table 1 in Oct. 5. 2009, Remarks) shows the increase of yield of diglucoside, Gnenonoside A with increasing concentration of EtOH owing to suppression of the glucosidase-hydrolysis" (page 5, 2nd paragraph).

Now the sentence of "The level of stilbene glucoside in the extract was 2-3 times lower than that before extraction" has been deleted from the Office Action. Qi was recited to indicate

that it is known in the art that 50% ethanol is used to extract stilbene glucoside. The level of stilbene glucoside in P. *multiflorem* is unrelated with the rejection or the current application.

Applicant argues that "The new compounds (products), which have an unknown structure by a combination of known structure moieties, are synthesized (produced) by ordinary methods. For example, many antihypertensives ([3-blocker, Ca-antagonist, ACE inhibiter, etc.) possess analogous substituents (functional groups)" (page 6, 2nd paragraph). Applicant argues that "This claimed invention, as well as the new compound, shows that the extraction by the aging step gives the extract with a different and novel composition" (page 6, 3rd paragraph).

This is not found persuasive. The claims are drawn to an extract, no particular compound have been claimed.

Applicant's arguments have been fully considered but they are not persuasive, and therefore the rejections in the record are maintained.

## Conclusion

No claim is allowed.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qiuwen Mi whose telephone number is 571-272-5984. The examiner can normally be reached on 8 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terry McKelvey can be reached on 571-272-0775. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Qiuwen Mi/

Primary Examiner, Art Unit 1655